

Amendments To The Claims

Claim 1 (currently amended): An apparatus for use generating illumination, comprising

a reflective base;

a first light source positioned proximate the reflective base; and

a reimaging reflector positioned partially about the first light source, where a percentage of light emitted from the first light source is reflected from the reimaging reflector to the reflective base and adjacent the first light source, and at least some of the percentage of light reflected from the reimaging reflector defines a first real image having dimensions about equal with dimensions of the light source such that the first real image is adjacent the first light source and the reflective base reflects the light of the first real image;

wherein said reflected light from said first real image is directed into substantially a same solid angle as a solid angle of substantially a remaining portion of light emitted from said first light source that does not strike the reimaging reflector thereby achieving etendue squeezing of said first light source.

Claim 2 (original): The apparatus of claim 1, wherein the reimaging reflector is generally a quarter ellipsoid with a first focus positioned on the first light source and a second focus positioned proximate the first light source at a position of the first real image.

Claim 3 (original): The apparatus of claim 2, wherein the second focus is further positioned below the reflective base at a height below a surface of the reflective base equal to a height of a light emitting surface of the first light source from the surface.

Claim 4 (original): The apparatus of claim 1, wherein the reimaging reflector comprises a first sector of a first prolate ellipsoid and a second sector of a second prolate ellipsoid, where the first and second sectors joined along an axis.

Claim 5 (original): The apparatus of claim 4, wherein a first percentage of the light reflected from the reimaging reflector is reflected from the first sector to the reflective base adjacent the first light source at the first real image of the first light source adjacent the first light source on a first side of the first light source such that the reflective base reflects the light of the first real image; and

a second percentage of the light reflected from the reimaging reflector is reflected from the second sector to the reflective base adjacent the first light source establishing a second real image of the first light source adjacent the first light source such that the reflective base reflects the light of the second real image.

Claim 6 (original): The apparatus of claim 5, wherein the first sector of the reimaging reflector is defined by a first ellipsoid having first and second foci, and the second sector of the reimaging reflector is defined by a second ellipsoid having third and fourth foci;

the first sector is positioned relative to the first light source such that the first focus is positioned on the first light source and the second focus is positioned to the first side of the first light source proximate the first light source at a position of the first real image; and

the second sector is positioned such that the third focus is positioned on the first light source and the fourth focus positioned to the second side of the first light source proximate the first light source at a position of the second real image.

Claim 7 (original): The apparatus of claim 1, wherein the reimaging reflector comprises four sectors distributed along an axis with each of the four sectors defined by

four prolate ellipsoids, where a first percentage of light reflected from the reimaging reflector is reflected by a first sector of the reimaging reflector to the reflective base at a first side the first light source establishing the first real image of the first light source, and where a second percentage of light reflected from the reimaging reflector is reflected by a second sector of the reimaging reflector to the reflective base adjacent the first light source on a second side of the first light source establishing a second real image of the first light source adjacent the first light source such that the reflective base reflects the light of the second real image.

Claim 8 (original): The apparatus of claim 1, further comprising a tailored free-form exit face positioned at least partially about the light source such that the percentage of light reflected by the reimaging reflector and light emitted from the source not reflected by the reimaging reflector is emitted from the exit face establishing an output illumination that meets a predefined prescription.

Claim 9 (original): The apparatus of claim 1, further comprising a lens wherein the first light source is positioned proximate the lens such that the lens receives the light from the first light source and the first real image.

Claim 10 (original): The apparatus of claim 9, wherein the lens comprises the reimaging reflector, and a cavity in which the first light source is positioned.

Claim 11 (original): The apparatus of claim 10, wherein the lens further comprises

first reflective surface positioned to receive the light from the first light source and the first real image;

a reflector array positioned to receive light reflected from the first reflective surface;

a mirrored surface positioned to receive reflected light from the reflector array;
and
an output surface.

Claim 12 (original): The apparatus of claim 1, further comprising
a lens comprising:

the reimaging reflector;
input surface defining a cavity that receives the first light source;
reflective fingers;
reflective folding face; and
exit face.

Claim 13 (original): The apparatus of claim 1, further comprising
a totally internally reflecting (TIR) lens positioned proximate the first light
source opposite from the reimaging reflector such that the TIR lens receives light
reflected by the first real image.

Claim 14 (previously presented): The apparatus of claim 13, wherein the
TIR lens is a de-centered lens comprising exit face, a central refractive lens, grooved
facets having entry faces, and totally internally reflecting faces positioned relative to the
grooved entry faces to receive light entering the lens from the entry faces of the grooved
facets and to reflect the received light to the exit face.

Claim 15 (previously presented): The apparatus of claim 14, wherein the
TIR lens comprises a de-centered generally rectangular TIR lens having dimensions of a
rectangular section of length defined according to a defining complete circular TIR lens
extend from a center to a peripheral edge of the defining complete circular TIR lens.

Claim 16 (original): The apparatus of claim 1, wherein the first real image is positioned adjacent the light source but separated from the light source by a gap.

Claims 17-44 (cancelled).

Claim 45 (previously presented): The apparatus of claim 1, wherein the reflective base reflects the light of the first real image away from the reimaging reflector.

Claim 46 (previously presented): The apparatus of claim 1, wherein the reimaging reflector is positioned partially about the first light source such that at least a secondary percentage of light directly from the first light source is directed away from the reimaging reflector.

Claim 47 (new): An apparatus for use generating illumination, comprising a reflective base; a first light source positioned proximate the reflective base; and a reimaging reflector positioned partially about the first light source, where a percentage of light emitted from the first light source is reflected from the reimaging reflector to the reflective base adjacent the first light source, and at least some of the percentage of light reflected from the reimaging reflector defines a first real image having dimensions about equal with dimensions of the light source such that the first real image is adjacent the first light source and the first light source and the first real image defining a virtual source that is larger in dimensions than the first real image, and the reflective base reflects the light of the first real image.

Claim 48 (new): An apparatus for use generating illumination, comprising a reflective base; a first light source positioned proximate the reflective base; and a reimaging reflector positioned partially about the first light source, where a percentage of light emitted from the first light source is reflected from the reimaging reflector to the reflective base adjacent the first light source where at least some of the percentage of light reflected from the reimaging reflector defines a first real image that is adjacent the first light source and reflected by the reflective base such that the first light source and the first real image define a virtual source thereby reducing a solid angle of light emissions without substantially increasing etendue of the first light source.

Claim 49 (new): An apparatus for use generating illumination, comprising a reflective base; a first light source positioned proximate the reflective base; and a reimaging reflector positioned partially about the first light source, where a percentage of light emitted from the first light source is reflected from the reimaging reflector to the reflective base adjacent the first light source and the reflective base reflects the percentage of light reflected by the reimaging reflector such that the first light source and the percentage of light reflected by the reimaging reflector define a virtual light source that has a width that is larger than a width of the first light source without substantially increasing etendue of the first light source.